

Medicinal Plant Diversity across the Vallavilai Coastal Villages of Kanyakumari District

S. Jaya Kumar¹, P. Rama Devi², S.Rejitha¹

¹Nesamony Memorial Christian College, Marthandam, Kanyakumari - 629 165, Tamil Nadu, India

²Aditanar College of Arts and Science, Tiruchendur - 628 216, Tamil Nadu, India

Corresponding Author: P. Rama Devi

ABSTRACT

Present Study was conducted in the Vallavilai coastal Villages of Kanyakumari district, Tamil Nadu, India to document the Medicinal plant wealth. Taxonomically, a total of 76 plant species belonging to 65 genera and 38 families were recorded. Of these 34 (45%) were herbs, 19 (25%) were shrubs, 13 (17%) were trees and 10 (13%) were climbers/creepers. The plant parts used for the preparation of medicine, whole plants were found to be most frequently used for the preparation of remedies. The mode of preparations is paste, juice, decoction and powder. The medicinal plants of the study area have been used to treat 53 illnesses. The 53 various ailments against which ethnomedicinal treatments have been recorded in the study area can be grouped into 12 major categories of symptomatically and organ-system related diseases/problems.

Key words: Ailments, coastal village, Medicinal plants, Vallavilai

INTRODUCTION

In traditional medicine, plants are required as a major component to cure many diseases caused by bacteria, fungi and virus in man. The World Health Organization (WHO) has estimated that 80% of the populations of developing countries still rely on traditional medicines, mostly plant drugs, for their primary health care needs.

India has rich plant diversity and is one among the mega biodiversity countries of the world. Indians have been using medicinal plants since antiquity and the Ayurvedic methods date back to 5000 B.C. India is rich in its coastal population from the immemorial time with their traditional knowledge system which deals with the many significant aspects and the health problems of coastal communities. The coastal population has their own herbal homework to treat various diseases. India has a coastline of about 7516.6 km long

with 2.02 million km exclusive economic zone and 0.13 million km continental shelf (Khoshoo 1996) and it covers nine states and two union territories. It has numerous lagoons, beaches, estuaries and mangrove swamps, which is rich in living and non-living resources. Tamil Nadu coastal line has a length of about 1076 km, it constitutes about 15% of the total coastal length of India. The coastal zone is an important biogeographically habitats of the Indian subcontinent (Rodgers and Panwar 1998).

Kanyakumari coastal line has a length of about 71.5 km. Coastal vegetation contains many species of specific flora and thus it is an ecological storehouse rich in biodiversity and also has high ecological values. The coastal plants are also used for construction materials, fuel wood and many other purposes. The characteristic feature of the coastal zone is the high population density dominated by fisherman and coir

workers. Coastal sand dunes are the natural structures which protect the coastal environment by absorbing energy from wind, tide and wave action. The plants are playing a vital role in protecting the coast from erosion and flooding.

Kanyakumari district, the southernmost tip of Indian Peninsula, is divided into four taluks namely: Agastheeswaram, Kalkulam, Vilavancode and Thovalai. The first three taluks are in the coastal belt with a length of 71.5 km (India's total coast line is 8118 km), having 47 coastal villages. These coastal villages have a population of 1,48,539 fishermen, forming 19 percent of the total fisherman population (7,90,408) in Tamil Nadu.

Hence the present study was undertaken to document the ethnomedicinal wisdom of Vallavilai village, to assess the medicinal plant diversity of Coastal line and to enumerate information about morphologically useful parts of the medicinal plants to cure various ailments. Vallavilai is a coastal Village on the shore of the Arabian Sea in Kanyakumari district, Tamil Nadu, India. It was situated near the border of Tamil Nadu and Kerala. This village is the part of Kollemcode Panchayat.

MATERIALS AND METHODS

Study Area

The present study was conducted in the Vallavilai coastal village. This village comes under Kollemcode Panchayat of Vilavancode Taluk. This village has coastal Villages on the shore of the Arabian Sea in Kanyakumari district, Tamil Nadu, India. It was situated near the border with Tamil Nadu and Kerala on north-west to Kanyakumari and southwest to Trivandrum. These villages are located nearly 70 km from Kanyakumari and 30 km from Trivandrum. Kanyakumari district is situated in the Southernmost tip of Tamil Nadu, Southern Peninsular India (77° 15'-77° 30' E, 8° 30'-8° 15' N), located in the part of Southern Western Ghats. It occupies an area of about 1684 sq.km, which is 1.29 percent of the total geographical area of the

state. Kanyakumari coastal line has a length of about 71.5 km. The location of the study area had latitude 8.28 and longitude 77.11.

Climate and Soil

The climate of the district is warm and humid. The annual rainfall varies from 89-254 cm, and maximum and minimum temperatures were 24°C - 28°C in winter and 26°C - 32°C in summer respectively. Moisture content ranges from 65 to 75%. The soil of the district is broadly classified into two major groups namely, Red and Alluvial soil.

Data Collection

Regular field trips were made during the study period (November 2018 to March 2019). The information was collected from the coastal people. A total of 25 were interviewed and obtained information's, mainly concerning their knowledge on medicine from the plants and their parts, local names etc. The biological information of the studied plant material was recorded in the field note book. Informants were asked to guide as to the places where these plants grow or to bring the drug they use. The medicinal uses of plants were checked through the literature available. The medicinal property of each plant was accepted as valid if atleast five separate informants had a similar opinion.

The prepared herbarium and the specimens were carefully examined for the morphology differences the different genera and the taxonomic characters that distinguished each species of the same genus. To identify the species taxonomically, regional and local flora were referred (Gamble 1915-1936; Matthew 1999; Matthew 1982, 1983; Nair 2006). The boucher specimens were processed in the customary way and deposited in the herbarium of Botany, Nesamony Memorial Christian college, Marthandam.

A systematic enumeration of medicinal plants has been arranged in alphabetical order. However botanical name, family, local name, common name where ever available, habit, growth form, useful parts followed by medicinal uses.

The arrangement of families of angiosperms is based on APG IV system of classification with necessary alterations. All the species are arranged alphabetically under each

family. Geographical maps are provided for the location of the Vallavilai Village, Kanyakumari district, Tamil Nadu, India.

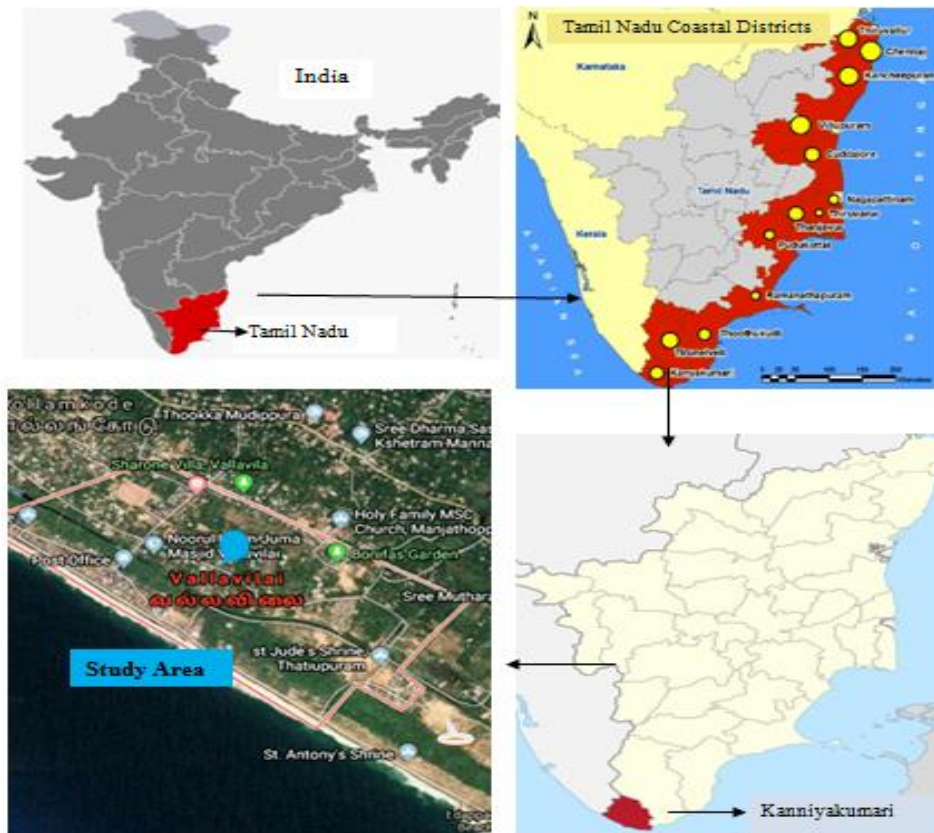


Plate 1: Map showing the Study Area

RESULTS

The ecosystem of Coastal villages is rich in important medicinal plant species. These plants are not only valuable as herbal drugs but also significant as a source of food, fodder, spices etc. The ethnobotanical information gathered from the study area of Vallavilai Coastal village.

Diversity of Ethnomedicinal Plants

Taxonomically, a total of 76 plant species belonging to 65 genera and 38 families were recorded. Of these 34 (45%) were herbs, 19 (25%) were shrubs, 13 (17%) were trees and 10 (13%) were climbers/creepers. Plant species, which are used in traditional medicine, are enumerated alphabetically according to their binomial names, followed by family names (Table 1). Of the 76 taxa, dicots were represented by 69 species belonging to 31 families and monocots by 7 species belonging to 7

families (Table 2). Based on the growth forms, total of 27 annuals species (36%) and 49 perennials (64%) were recorded from the study area.

Family wise distribution shows that Leguminosae and Malvaceae was the dominant families represented by Leguminosae have 7 species under 6 genera, Malvaceae have 7 species under 5 genera, followed by Lamiaceae have 5 species under 5 genera, Amaranthaceae, Compositae, Euphorbiaceae and Solanaceae having 4 species each, Acanthaceae, Apocynaceae, Cleomaceae and Cucurbitaceae having 3 species each, Combretaceae and Convolvulaceae having 2 species each, whereas 25 families (Anacardiaceae, Annonaceae, Arecaceae, Caricaceae, Commelinaceae, Dioscoreaceae, Lythraceae, Meliaceae, Molluginaceae, Moraceae, Moringaceae,

Musaceae, Myrtaceae, Nyctaginaceae, Sapotaceae, Talinaceae, Verbenaceae, Oleaceae, Pandanaceae, Passifloraceae, Xanthorrhoeaceae) were monospecific Phyllanthaceae, Plumbaginaceae, (Figure 1). Rubiaceae, Rutaceae, Sapindaceae,

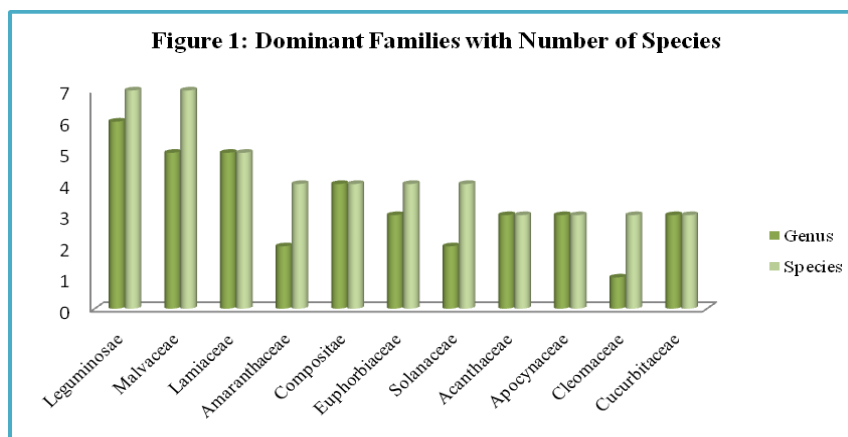


Table 1: List of Ethnomedicinal Plants Recorded From the Study Area

Sl. No.	Name of the Species	Family	Local Name	Useful Part	Therapeutic uses
1.	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Cheepu kai	Whole plant	Fever
2.	<i>Acalypha indica</i> L.	Euphorbiaceae	Kupaimaeni	Leaves	Headache and skin diseases
3.	<i>Acanthospermum hispidum</i> DC.	Compositae	Katu nerunchi	Whole plant	Fever and leprosy
4.	<i>Aloe vera</i> (L.) Burm.f.	Xanthorrhoeaceae	Kathalai	Leaves	Stomachache
5.	<i>Amaranthus blitum</i> L.	Amaranthaceae	Keerai	Whole plant	Headaches
6.	<i>Amaranthus cruentus</i> L.	Amaranthaceae	Keerai	Whole plant	Laxative and pains in the limbs
7.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Kuppaikkirai	Leaves	Fever and eye infections
8.	<i>Andrographis paniculata</i> (Burm.f.) Nees	Acanthaceae	Nilavembu	Whole plant	Diarrhea, constipation, and stomach pain
9.	<i>Annona squamosa</i> L.	Annonaceae	Munthiri maram	Leaves	Dysentery and urinary tract infection
10.	<i>Asystasia gangetica</i> (L.) T.Anderson	Acanthaceae	Miti-kirai	Whole plant	Wounds, piles, stomach-ache, snakebites
11.	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Vepa maram	Leaves	Skin diseases like eczema and psoriasis
12.	<i>Barleria cuspidata</i> F.Heyne ex Nees	Acanthaceae	Manchat-cemmulli	Leaves	Maceration and cracking
13.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Sarandai	Root	Heart diseases, skin disorders
14.	<i>Calotropis gigantea</i> (L.) Dryand.	Apocynaceae	Eruku	Root and leaves	Rheumatism
15.	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Ulinjai	Root and leaves	Rheumatism and amenorrhea
16.	<i>Carica papaya</i> L.	Caricaceae	Papali maram	Leaf and fruit	Skin diseases, blood pressure and dyspepsia
17.	<i>Catharanthus roseus</i> (L.) G.Don	Apocynaceae	Nithia kalyani	Whole plant	Diabetes, malaria and cancer
18.	<i>Centrosema pubescens</i> Benth.	Leguminosae	Kattupayar	Leaf and seed	Skin diseases, scorpion and snake bites
19.	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Compositae	Kamyunist alai	Stem and leaves	Eye pains, antibiotic, anti-malarial
20.	<i>Cleome gynandra</i> L.	Cleomaceae	Vellai chedi	Leaves	Cough, headache and rheumatism
21.	<i>Cleome ruidosperma</i> DC.	Cleomaceae	Neelavela	Whole plant	Malaria, inflammation and deafness
22.	<i>Cleome viscosa</i> L.	Cleomaceae	Naikkatuku	Leaves and seed	Wounds and ulcers
23.	<i>Clerodendrum infortunatum</i> L.	Lamiaceae	Karukanni	Root and leaves	Diarrhea, malaria, skin diseases,
24.	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Kovakai	Whole plant	Leprosy, bronchitis, joint pain
25.	<i>Cocos nucifera</i> L.	Arecaceae	Thennai maram	Fruit	Pimples and black dots
26.	<i>Combretum indicum</i> (L.) DeFilipps	Combretaceae	Irangun malli	Whole plant	Diarrhea and fever
27.	<i>Commelina benghalensis</i> L.	Commelinaceae	Kanan valai	Whole plant	Diarrhea and eye complaints
28.	<i>Crotalaria pallida</i> Aiton	Leguminosae	Kilukilipai	Whole plant	Urinary problems, fever,

Table 1 to be continued...

29.	<i>Crotalaria verrucosa</i> L.	Leguminosae	Gilugiluppai	Root	Fever, stomach pains and skin diseases
30.	<i>Cucumis sativus</i> L.	Cucurbitaceae	Vellarikai	Leaf and fruit	Dyspepsia
31.	<i>Cucurbita maxima</i> Duchesne	Cucurbitaceae	Poosanikai	Seed	Parasitic worms
32.	<i>Dioscorea alata</i> L.	Dioscoreaceae	Peruvalli	Fruit	Fever, gonorrhoea, leprosy
33.	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Paal perukki	Whole plant	Stomach-ache, intestinal worms
34.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Nilappala	Whole plant	Anticancer activity, skin diseases
35.	<i>Ficus religiosa</i> L.	Moraceae	Arasa maram	Whole plant	Against bites of venomous animals
36.	<i>Glinus oppositifolius</i> (L.) Aug.DC.	Molluginaceae	Thura poondu	Whole plant	Promote digestion
37.	<i>Gliricidia sepium</i> (Jacq.) Walp.	Leguminosae	Seemai agathi	Whole plant	Cough, fever, fractures, rheumatism
38.	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Neervadamalli	Whole plant	Skin diseases, worm infections
39.	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Chembaruthi	Leaves	Dandruff
40.	<i>Hibiscus surattensis</i> L.	Malvaceae	Kashlikirai	Leaf and stem	Urethritis
41.	<i>Hyptis suaveolens</i> (L.) Poit.	Lamiaceae	Pachilai	Leaves	Fungal infection and diarrhea
42.	<i>Ipomoea pes-caprae</i> (L.) R. Br.	Convolvulaceae	Adapukodi	Whole plant	Rheumatism, colic, piles
43.	<i>Ipomoea triloba</i> L.	Convolvulaceae	Kakattan	Whole plant	Stomach ache
44.	<i>Jasminum sambac</i> (L.) Sol.	Oleaceae	Mullai	Leaf and flower	Intestinal worms, jaundice, cancer
45.	<i>Lantana camara</i> L.	Verbenaceae	Unni chedi	Leaves	Rheumatism
46.	<i>Lawsonia inermis</i> L.	Lythraceae	Mailanchi	Leaves	Skin diseases
47.	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Tumbai	Whole plant	Intestinal worm, scorpion bites and fevers
48.	<i>Mangifera indica</i> L.	Anacardiaceae	Manga maram	Whole plant	Ulcer
49.	<i>Manilkara zapota</i> (L.)P.Royen	Sapotaceae	Sapota maram	Whole plant	Fever, ulcers and diarrhea
50.	<i>Mimosa pudica</i> L.	Leguminosae	ThotaaI churungi	Root	Asthma, diarrhea, skin wounds
51.	<i>Moringa oleifera</i> Lam.	Moringaceae	Murungai maram	Leaves and fruit	Indigestion, hair falling and eye diseases
52.	<i>Musa x paradisiaca</i> L.	Musaceae	Vaazhai	Fruit	Stomach ache
53.	<i>Nerium oleander</i> L.	Apocynaceae	Arali	Flower	Heel cracks
54.	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Thulasi	Leaves	Cough and fever
55.	<i>Pandanus amaryllifolius</i> Roxb.	Pandanaceae	Ramba	Leaves	Fever, relieve indigestion and flatulence
56.	<i>Parthenium hysterophorus</i> L.	Compositae	Parthenium	Whole plant	Skin inflammation, rheumatic pain, diarrhea
57.	<i>Passiflora foetida</i> L.	Passifloraceae	Chokkan kai	Leaves	Sleeping problems, itching
58.	<i>Phyllanthus niruri</i> L.	Phyllanthaceae	Keezhanelli	Whole plant	Chronic fever and jaundice
59.	<i>Physalis angulata</i> L.	Solanaceae	Chodaku chedi	Whole plant	Rheumatic pain, muscular stiffness and pain
60.	<i>Plectranthus amboinicus</i> (Lour.) Spreng.	Lamiaceae	Pachilai	Whole plant	Dyspepsia and snakebites
61.	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Kodivaeli	Whole plant	Leprosy
62.	<i>Psidium guajava</i> L.	Myrtaceae	Peraikai maram	Leaves and fruit	Diarrhea and diabetes
63.	<i>Ricinus communis</i> L.	Euphorbiaceae	Aamanaku	Root and leaves	Inflammations, skin diseases and rheumatism
64.	<i>Senna occidentalis</i> (L.) Link	Leguminosae	Payaverai	Seed	Rheumatism and diabetes
65.	<i>Sida cordifolia</i> L.	Malvaceae	Arivalmukkan	Root and seed	Inflammation, asthmatic bronchitis
66.	<i>Sida rhombifolia</i> L.	Malvaceae	Karisalanganni	Whole plant	Swelling, headache and rheumatism
67.	<i>Solanum americanum</i> Mill	Solanaceae	Manathakali	Whole plant	Liver disorders, fever and dysentery
68.	<i>Solanum lycopersicum</i> L.	Solanaceae	Thakali chedi	Whole plant	Burns, scalds, sunburn and toothache
69.	<i>Solanum melongena</i> L.	Solanaceae	Katharikai	Whole plant	Blood cholesterol and regulate high blood pressure
70.	<i>Spermacoce ocyroides</i> Burm.f.	Rubiaceae	Nathaichuri	Leaves	Wounds, eczema, worms and ringworm
71.	<i>Talinum fruticosum</i> (L.) Juss.	Talinaceae	Pachai keerai	Whole plant	Measles and diabetes
72.	<i>Tamarindus indica</i> L.	Leguminosae	Puli maram	Whole plant	Swellings
73.	<i>Terminalia catappa</i> L.	Combretaceae	Vethavankai	Whole plant	Jaundice, indigestion and diarrhea
74.	<i>Thespesia populnea</i> (L.) Sol. Ex Correa	Malvaceae	Cheelaanthi maram	Leaves and flower	Skin disease
75.	<i>Tridax procumbens</i> (L.) L.	Compositae	Odian pachilai	Leaves	Wounds, skin diseases and liver disorders
76.	<i>Triumfetta rhomboidea</i> Jacq.	Malvaceae	Ottupullu	Whole plant	Diarrhea, dysentery and gonorrhoea

Table 2: Distribution of Families, Genera and Species under Dicots and Monocots

Category	Dicots (n)	%	Monocots (n)	%	Total (n)
Families	31	19	7	34	38
Genera	58	37	7	33	65
Species	69	44	7	33	76

Plant Part Used for the Preparation of Medicine

In the present study the various plant parts used as medicines were whole plant (36), Leaves (16), Leaves and fruits (4), Root and leaves (4), Fruits (3), Roots (3), Leaves and flowers (2), Leaves and seed (2), Seed (2), Stem and leaves (2), Flower (1), Root and seed (1). Whole plants are largely used in the study area. Entire plants are extracted for medicinal purposes in case of herbs. (Table 3).

The plant parts used for the preparation of medicine, whole plants were found to be most frequently used for the preparation of remedies. The mode of preparations is paste, juice, decoction and powder.

Table 3: Plant Parts Used for Medicinal Purposes

Sl. No.	Useful parts	No. of species
1	Whole plant	36
2	Leaves	16
3	Leaves and fruit	4
4	Root and leaves	4
5	Fruit	3
6	Root	3
7	Leaves and flower	2
8	Leaves and seed	2
9	Seed	2
10	Stem and leaves	2
11	Flower	1
12	Root and Seed	1

Route of Administration and Dosage

Most of the medicinal plants were collected from wild habitats. The medicinal plants are mostly used in the form of decoction. Most of the remedies were taken orally. They were also used in direct application of the paste for ailments like skin diseases, wounds, heel cracks, poison bites, rheumatism, body pain and headache. Some of the ailments were treated by internal consumption as well as topical application such as poison bite, rheumatism and body pain and also, some of the ailments such as cold, cough, headache and fever were involved.

Out of 76 plant species, particularly 13 species are used for fever, 9 species used for Cough, 9 species used for Rheumatism, 7 species used for stomach ache, 5 species used for jaundice, 4 species used for headache, 2 plants used for diarrhoea. Most of the collected medicinal plants have efficiency to fight against more than one disease. The most popular medicinal plants, in terms of the number of disease against which they are used, they are *Gliricidia sepium*, (8 diseases), *Clerodendrum infortunatum* (7), and *Asystasia gangetica* (6). 11 species (*Andrographis paniculata*, *Carica papaya*, *Coccinia grandis*, *Dioscorea alata*, *Ipomoea pes-caprae*, *Manilkara zapota*, *Parthinium hysterophorus*, *Physalis angulata*, *Ricinus communis*, *Senna occidentalis*, *Sida cordifolia*) are used in the treatment of 5 diseases.

Ethnomedicinal Importance of the Plant Species

The medicinal plants of the study area have been used to treat 53 illnesses. The ailments such as scabies, eczema, leucoderma, skin tumours, skin inflammation, skin wounds, scalds, burns, psoriasis, pimples, black dots, heel cracks, itching, boils, measles, rheumatic pain, stomach-ache, swelling of joints, headache, joint pain, muscular stiffness and pain, hemorrhage, dysuria, urinary tract infection, urethral discharge, urethral stones, bladder stones, bladder inflammation. constipation/ indigestion, dysentery, diarrhoea, intestinal gas, intestinal worms, intestinal colic, piles, dyspepsia, ulcers, liver disorders, nausea, vomiting, cough, cold, asthma, bronchitis, sore throats, diphtheria, bowel complaints, scorpion bites, snake bites. fever, jaundice, diabetes, fractures, deafness, eye diseases, tooth problems, edema, cancer, malaria, fungal infection, sleeping problems, blood cholesterol, blood pressure, heart diseases, leprosy, anemia, limb pain, epilepsy, gonorrhoea, syphilitic affections, greying of the hair, hair falling, dandruff etc.

The 53 various ailments against which ethnomedicinal treatments have been

recorded in the study area can be grouped into 12 major categories of symptomatically and organ-system related diseases/problems, such as 20 plants are used for Skin problems, 14 species are Body pain/Swelling, 6 species are Urino-genital problems, 38 plants used for Gastro-intestinal problems, 13 species used for Respiratory problems. 5 species used for Chronic infectious diseases, 2 species used for Peripheral artery disease, 1 species

(*Asystasia gangetica*) used for Brain disorder (Epilepsy), 7 species used for Animal bites, 6 species used for Venereal disease, 3 plants used for Hair problems, 29 species used for Others diseases (Fever, jaundice, diabetes, fractures, deafness, eye diseases, tooth problems, edema, cancer, malaria, fungal infection, sleeping problems, blood cholesterol, blood pressure, heart diseases. (Table 4).

Table 4: Diseases Treated in the Ethnomedicine of Study Area

Category	Diseases/conditions included	No. of plant species
Skin problems	Scabies, eczema, leucoderma, skin tumours, skin inflammation, skin wounds, scalds, burns, psoriasis, pimples, black dots, heel cracks, itching, boils, measles.	20
Body pain/Swelling	Rheumatic pain, stomachache, swelling of joints, headache, joint pain, muscular stiffness and pain	14
Urino-genital problems	Hemorrhage, dysuria, urinary tract infection, urethral discharge, urethral stones, bladder stones, bladder inflammation	6
Gastro-intestinal problems	Constipation/ indigestion, dysentery, diarrhoea, intestinal gas, intestinal worms, intestinal colic, piles, dyspepsia, ulcers, liver disorders, nausea, vomiting	38
Respiratory problems	Cough, cold, asthma, bronchitis, sore throats, diphtheria, bowel complaints	13
Chronic infectious disease	Leprosy, anemia	5
Peripheral artery disease	Limb pain	2
Brain disorder	Epilepsy	1
Animal bites	Scorpion bites, snake bites	7
Venereal disease	Gonorrhea, syphilitic affections	6
Hair problems	Graying of the hair, hair falling, dandruff	3
Others	Fever, jaundice, diabetes, fractures, deafness, eye diseases, tooth problems, edema, cancer, malaria, fungal infection, sleeping problems, blood	29

Selected medicinal plants in the Study Area



Abutilon indicum



Amaranthus blitum



Cardiospermum halicacabum



Centrosema pubescens



Cleome gynandra



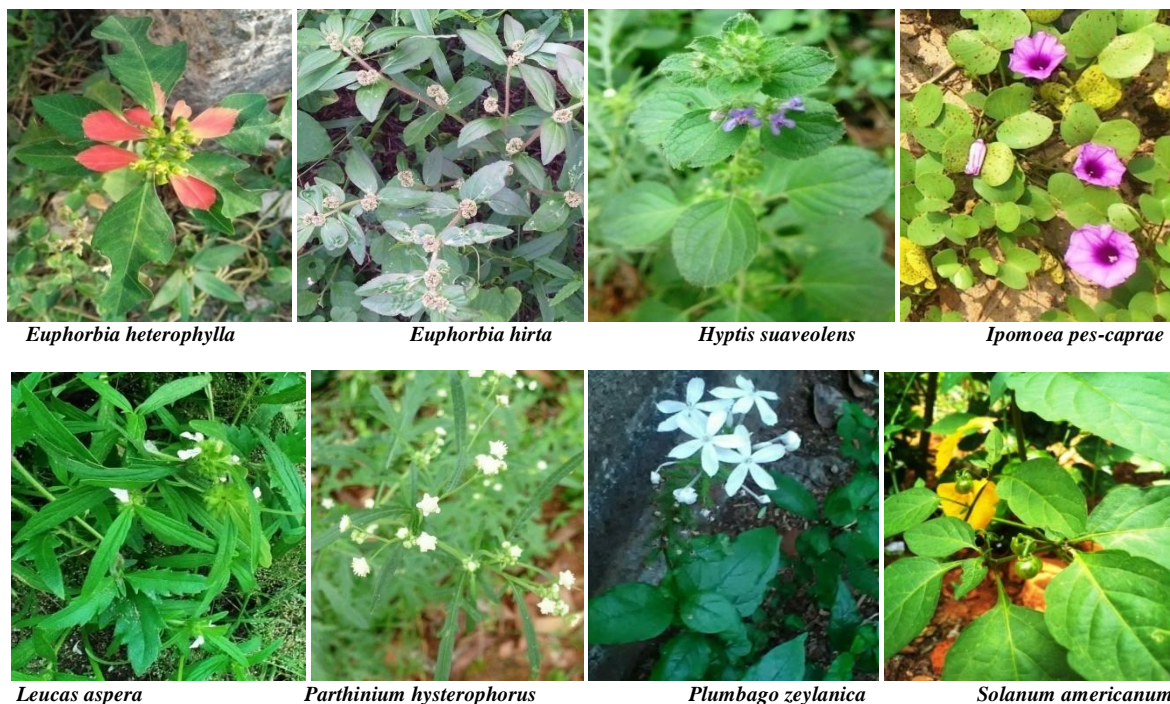
Cleome rutidosperma



Clitoria ternatea



Crotalaria verrucosa



DISCUSSION

Medicinal plants have been used for millennia in virtually all cultures and serve both as a source of income and affordable healthcare. Worldwide, about 53,000 plant species are used for medicinal purposes (Hamilton 2004). According to an estimate of the World Health Organization (WHO), about 80% of the populations in the developing countries still rely on traditional medicine for their primary health care needs.

India is rich in its ethnic diversity of which many aboriginal cultures have retained traditional knowledge concerning the medicinal utility of the native flora. In the present investigation, a total of 76 medicinal plants belonging to 65 genera from 38 families were collected and recorded (Table 1). Similarly, Raafat et al (2008) recorded 121 medicinal species belonging to 96 genera and 37 families. The report is connected to the previous work (Heindrickson et al 2010; Muthukumar and Selvin Samuel 2010; Sahu et al 2011; Bartwal et al 2011; Bhandary and Chandrashekar 2014; Qasim et al 2014; Jenisha and Jeeva 2014) etc.

A total of 27 annuals species (36%) and 49 perennials (64%) were recorded from the study area. Raafat et al (2008) recorded

medicinal plants of North Sinai consists of 39 annuals and 82 perennials. The medicinal plants of the study area have been used to treat 53 illnesses. Heindrickson et al (2010) recorded 73 illnesses from the fishing communities of South Brazil. Muthukumar and Selvin Samuel (2010) reported 30 illness coastal areas of Tuticorin district. According to Bhandary and Chandrashekar (2014) recorded 42 ailments from the coastal Karnataka.

All the plants were able to cure different human ailments such as diabetes, cough, body ache, eye diseases, fever etc. Most of these plants are being used directly by the people or to prepare decoction or with slight preparation like applying the paste, boiling the useful parts of these plants, simply chewing leaves making extract of the plant and using it etc. The report is connected to the previous work (Rao *et al.*, 2002; Bhattacharya 2002; Singh 2002; Gupta 2000; Khan 2004; Dhar et al 2003; Heindrickson et al 2010; Muthukumar and Selvin Samuel 2010; Qasim *et al* .,2014) etc. The method of preparation of medicine and use is same or different from place to place.

Majority of the work revealed that leaves were predominantly used than the other parts. Bourdy *et al* (2000) registered

an overwhelming use of leaves in one Amazon community; Medeiros *et al* (2004) obtained the same results with a group of ranchers in the state of Rio de Janeiro; Pinto *et al* (2006) cited the predominant use of leaves in rural communities in the Atlantic Forest; Heindrickson *et al*, (2010) also registered the leaves are predominantly used in Fishing communities of Southern Brazil; Muthukumar and Selvin Samuel (2010) obtained the same results in Coastal area of Tuticorin district; Sahu *et al* (2011) cited the predominant use of leaves in Coastal district of Odisha; Jenisha and Jeeva (2014) registered an overwhelming use of leaves in Keezhakrishnanputhoor- A coastal village of Kannyakumari district. But my study revealed that whole plants are dominantly used from the study area.

The plants such as *Annona squamosa* and *Sida cordifolia* were used to cure scorpion bite, stomach ache and fever. In the present study also same plants were used to cure particular diseases. They were reported by Viswanathan 2000; Rajendran *et al.*, 2002; Sharma & Mujundar 2003. So the present study was consistent with the previous work.

Mangifera indica and *Carica papaya* were used to treat indigestion and stomach problems. It was reported by Kamble *et al.*, 2008. The plants such as *Ricinus communis*, *Boerhavia diffusa*, *Tridax procumbens*, *Lawsonia inermis*, *Cocos nucifera* and *Tamarindus indica* were used to cure wound, jaundice, improves hair growth, urinary difficulty, dissolves bladder stones, eczema, heart diseases, snake bite and poisonous insect bite. In the present study also, same plants were used to cure particular diseases. They were reported by Ayanar *et al.*, 2010 ; Hitesh and Patel, 2013; Datta *et al.*, 2014. The plants such as *Lantana camara*, *Moringa oleifera*, *Mimosa pudica*, *Passiflora foetida* and *Thespesia populnea* were used to cure muscle pain, rheumatism, headache, scabies, leucoderma, itching of the skin, asthma, and ulcer. They were reported various author such as

Moorthy *et al.*, 2002; Rana *et al.*, 2002; Arya and Prakash 2000.

The crude drug is obtained from medicinal plants. Due to the influence of modern medicine, the usage of traditional medicine becomes decreased day by day. When the people need to small part of the plant, but they pullout the whole plant. So the wealth of medicinal plants decreases, so we have to conserve the medicinal plants and utilize the crude drugs obtained from medicinal plants.

CONCLUSION

The coastal plant species of the coastal village of Vallavilai has extremely important, which play a vital role in the medicinal and social life of people. Findings of the present investigation revealed that, the coastal village of Vallavilai have a very rich diversity of medicinal plants. Medicinal plants are still an important resource utilized for health maintenance of families of the fishing community of the study area. All together 76 medicinal plants, used for treating 53 different human ailments were recorded in the study area. Of these 34 (45%) were herbs, 19 (25%) were shrubs, 13 (17%) were trees and 10 (13%) were climbers/creepers belonging to 38 different families were recorded.

Among the recorded species mostly whole plants are utilized as medicines. Other useful parts include Root, Stem, Leaves, Flower, Fruits and Seeds. The crude drug obtained from medicinal plants can be used in the treatment of various diseases. The noteworthy findings stand out from this work, data suggests that people in the more isolated village know and consume more plants than people in the more accessible village. Conservation and judicious utilization of this coastal plant wealth is important because they have become threatened by over-exploitation.

The findings of this study reveal that common plant species seen around us also play an important role in the treatment of various ailments. Due to the impact of urbanization, partial modernization and over

exploitation of plant species for medicinal purposes there is chance for disappearance of some plant species in near future. Therefore, appropriate measures should be taken to conserve these plants for healthy and disease free life.

REFERENCES

- Arya, KR & Prakash, V 2000, 'Ethnobotanical study of a remote tribal area of a remote tribal area of Almora district: A survey report. In: Ethnobotany and medicinal plants of Indian subcontinent', Maheshwari, JK (ed.), Scientific Publishers, Jodhpur, pp. 247-252.
- Ayanar, M & Ignacimuthu, S 2005, 'Traditional knowledge of kani tribals in southalai of Tirunelveli hills, Tamil Nadu, India', Journal of Ethnopharmacology, vol. 2, pp. 246-255.
- Bartwal, M, Veena Chandra, & Rajwas, GS 2011, 'Ethnomedicinal plant diversity among the Jaunsaries in Tons valley, Uttarakhand', National Conference on Forest Biodiversity: Earth Living Treasure, pp. 109-114.
- Bhandary, JM & Chandrashekar, KR 2014, 'Diversity and use of ethnomedicinal plants in coastal Karnataka, India', Biodiversitas, vol. 15, no. 1, pp. 89-93.
- Bhattacharya, G 2002, 'Ethnobotanical studies on some weeds of Gujarat, India, In Recent Progress in Medicinal Plants' (Ethnomedicine and pharmacognosy), Singh, VK, Govil, JN & Singh, G. (eds) SCI Tech Publishing LLC, USA, vol.1, pp.33-40.
- Bourdy, G, DeWalt, SJ, Michel, LRC, Roca, A, Deharo, E, Munoz, V, Balderrama, L, Quenevo, C & Gimenez, A 2000, 'Medicinal plants uses of the Tacana, an Amazonian Bolivian ethnic group', Journal of Ethnopharmacology, vol. 70, pp. 87-109.
- Datta, T, Amal Kumar, P & Santanu Ghosh, D 2014, 'Medicinal plants used by the tribal population of Coochbehar district, West Bengal, India', Asian Pacific Journal of Tropical biomedicine, vol. 4, pp. 478-482.
- Dhar, U, Singh, VK & Aminuddin, MA 2003, 'Ethnobotany of Bhuyans and Juangs of Orissa. In: Recent progress in medicinal plants', Ethno medicine and pharmamedicine and pharmacoghosy II, Singh, VK, Govil, JN, Hasmi, S & Singh, G (eds.) Stadium Press, LLC, USA, vol. 7, pp.193-204.
- Gamble, JS & Fischer, CEC 1915-1936, 'The Flora of the Presidency of Madras', Part I- II, Adlard and Son Ltd, London.
- Gupta, HS, 2000, 'Ethnopharmacological study of korwa Tribes of Bihar, India', In Recent Progress in Medicinal Plants', Ethnomedicine and pharmacognosy, Singh, VK, Goel, JN & Singh, G (eds) SCI Teach publishing LIC, USA, vol. 1, pp. 73-78.
- Hamilton, AC 2004, 'Medicinal plants, conservation and livelihoods', Biodiversity and Conservation, vol. 13, pp. 1477-1517.
- Heindrickson, A, Cunha Meretika, Nivaldo Peroni & Natalia Hanazaki 2010, 'Local knowledge of medicinal plants in three artisanal fishing communities (Itapoa, Southern Brazil), according to gender, age and urbanization', Acta bot. bras, vol. 24, no. 2, pp. 386-394.
- Hitesh, PR & Patel, RS 2013, 'Ethnobotanical plants used by tribes of R.D.F. Poshina Forest Range of Sabarkantha District, North Gujarat, India', International Journal of Scientific and Research Publications, vol. 3, no. 2, pp. 1-8.
- Jenisha, SR & Jeeva, S 2014, 'Traditional remedies used by the inhabitants of Keezhakrishnanputhoor- A coastal village of Kanyakumari district, Tamil Nadu, India', Medicinal & Aromatic Plants, vol. 3, no. 4, pp. 2-5.
- Kamble, SY, More, TN, Panwar, SG, Ram, B & Bodhankar, SL 2008, 'Plants used by the tribals of North West Maharashtra for the treatment of gastrointestinal disorders', Indian Journal of Traditional knowledge, vol. 7, no. 2, pp. 321-325.
- Khan, AM & Aslam, M 2004, 'Medicinal plants of Balochistan, project on Introduction of Medicinal herbs and species as crop', Ministry of Food, Agriculture and Livestock, Qarshi Industries (Pvt) Ltd, pp. 3-44.
- Khoshoo, TN 1996, 'Vesicular-arbuscular mycorrhizae of Hawaiian dune plants', Curr Sci, vol. 71, pp. 506-513.
- Matthew, KM 1999, 'The Flora of the Palani Hills South India', The Rapinat Herbarium, Thiruchirapalli, Tamilnadu, vol. 3.

- Matthew, KM 1982, 'Flora of Tamil Nadu Carnatic, Rapinent Herbarium, Tiruchirappalli', pp. 1-3.
- Matthew, KM 1983, 'The Flora of the Tamil Nadu Carnatic'.
- Medeiros, MFT, Fonseca, VS & Andreato, RHP 2004, 'Plantas medicinais e seus usos pelos sítios da Reserva Rio das Pedras, Mangaratiba, R.J. Brasil'. *Acta Botanica Brasilica*. vol. 18, pp. 391-399.
- Moorthy, P, Venkatapiah, V & Nagarajan, M 2002, 'Pharmacognostic study of Moringa Oleifera Lamk.: An important drug of indigenous system of medicine. In: Recent Progress in Medicinal Plants (Ethnomedicine and Pharmacognosy)', Singh, VK, Govil, JN & Singh, G, (Eds) SCI Tech publishing LLC, USA, vol. 1, pp. 277-296.
- Muthukumar, K & Selvin Samuel, A 2010, 'Traditional herbal medicines of the coastal diversity in Tuticorin district, Tamil Nadu, India', *Journal of Phytology*, vol. 2, no. 8, pp. 38-46.
- Nair, PKR 2006, 'Whither homegardens, In: Kumar, BM & Nair, PKR (eds.), 'Tropical Homegardens: A Time-Tested Example of Sustainable Agroforestry', *Advances in Agroforestry*, Springer, Dordrecht, The Netherlands, vol. 3, pp.355-370.
- Pinto, EPP, Amorozo, MCM & Furlan, A 2006, 'Conhecimento popular de plantas medicinais em comunidades rurais de mata atlantica- Itacare, BA. Brasil', *Acta Botanica Brasilica*, vol. 20, pp. 751-762.
- Qasim, M, Zainul Abideen, Muhammad Yousuf Adnan, Raziuddin Ansari, Bilquees Gul & Muhammad Ajmal Khan 2014, 'Traditional ethno-botanical uses of medicinal plants from coastal areas of Pakistan'. *Journal of Coastal Life Medicine*, vol. 2, no. 1, pp. 22-30.
- Raafat, H, Abd El-Wahab, Mohamed Zaghoul, S, Wafaa Kamel, M & Abdel Raouf Moustafa, A 2008, 'Diversity and distribution of medicinal plants in North Sinai, Egypt', *African Journal of Environmental Science and Technology*, vol. 2, no. 7, pp. 157-171.
- Rajendran, SM, Chandrasekar, K & Sundarsan, V 2002, *Indian Journal of Traditional knowledge*, vol. 1, pp. 59-71.
- Rana, TS, Singh, KK & Rao, RR 2002, 'Studies on indigenous herbal remedies for Diabetes mellitus in India, In: *Ethnobotany and Medicinal plants of Indian Subcontinent*', Maheshwari, JK (Ed.), Scientific publishers, Jodhpur, pp. 99-108.
- Rao, KS, Maikhuri, PK, Nautiyal, S, Saxena, KG & Garhwal 2002, 'Ethnobotany of Tolchha sect of Bhotiya community of Garhwal Himalaya India', In *Recent Progress in Medicinal Plants*, Ethnomedicine and pharmacognosy, Singh, VK, Govil, JN & Singh, G (eds.) scl Teach publishing LIC, USA, vol. 1, pp. 1-32.
- Rodgers, WA & Panwar, HS 1998, 'Planning wildlife Protected Area Network in India', *Wildlife Institute of India, Dehra Dun, India*, vol. 1.
- Sahu, SC, Pattnaik, SK, Sahoo, SL, Lenka, SS & Dhal, NK 2011, 'Ethnobotanical study of plants in the coastal districts of Odisha', *Current Botany*, vol. 2, no. 7, pp. 17-20.
- Sharma, PP & Mujundar, AM 2003, 'Indian Journal of Traditional of Traditional knowledge', vol. 2, pp. 292-296.
- Singh, V 2002, 'Herbal remedies in the Traditional medicines of the Lolab valley in Kashmir, Himalaya, India', In: *Recent Progress in Medicinal Plants*, Ethnomedicine and pharmacognosy, Singh, VK, Govil, JN and Singh, G (eds) SCI Teach publishing LIC, USA, vol. 1, pp. 63:72.
- Viswanathan, MV 2000, 'Edible and Medicinal Plants of Indian Subcontinent', Maheshwari, JK (ED.), Scientific Publishers, Jodhpur, pp. 151-154.

How to cite this article: Kumar SJ, Devi PR, Rejitha.S. Medicinal plant diversity across the Vallavilai coastal villages of Kanyakumari district. *International Journal of Research and Review*. 2019; 6(9):225-235.
